

REMARKS

In view of the following remarks, Applicant respectfully requests reconsideration and allowance of the subject application. This amendment is believed to be fully responsive to all issues raised in the August 4, 2004 Office
5 Action.

Rejections to the Claims

35 U.S.C. 102(e)

Claims 1-3, 13-23, 26-30, 35-42, 46-55, 58-59, 61-65, and 68-81 are
10 rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,553,072 issued to Chiang et al. (herein referred to as "Chiang").

The Applicant's application describes encoding a source image using a layered coding technique that generates multiple layers with different aspect ratios. A base layer has one aspect ratio and represents a low-resolution portion of the source image and an enhancement layer has a different aspect ratio and represents a high-resolution portion of the source image. The base 15 layer and enhancement layer, when taken together, represent the source image and enhancement layer, when taken together, represent the source image.

Applicant's application also describes decoding the encoded layers to
20 generate displayable images. For example, the base layer may have an aspect ratio of 4:3 and when decoded, may be suitable for display by a conventional (low-resolution) television. The enhancement layer may have, for example, an aspect ratio of 16:9. The enhancement layer represents a high-resolution

portion of the source image. When decoded, the enhancement layer may be combined with the decoded low-resolution base layer to create an image that is suitable for display by a high-definition television.

Specifically, claim 1 recites:

5 A method of encoding a source image, the method comprising:
 generating a base layer representing a low-resolution portion of the source image, wherein the base layer has an associated aspect ratio; and
 generating an enhancement layer representing a high-resolution portion of the source image, wherein the enhancement layer has an associated aspect
10 ratio, and wherein the aspect ratio associated with the enhancement layer
 differs from the aspect ratio associated with the base layer.

Chiang describes a dynamically configurable video signal processing system for encoding and decoding data in the form of hierarchical layers. The
15 image resolution and corresponding number of pixels per image of data may be varied as a function of system parameters. (Chiang, Abstract.)

Chiang does not describe “generating a base layer”; “generating an enhancement layer”; “wherein the enhancement layer has an associated aspect ratio, and wherein the aspect ratio associated with the enhancement layer
20 differs from the aspect ratio associated with the base layer”, as claimed. In fact, Chiang does not even mention the term “aspect ratio”.

The Office cites Chiang, column 2, line 65 – column 3, line 10 as describing “the aspect ratio associated with the enhancement layer differs from

the aspect ratio associated with the base layer.” Applicant respectfully disagrees, pointing out that column 2, line 65 – column 3, line 10 states:

5 The enhancement layer data accommodates different frame sizes but a single frame rate and a single chrominance coding format. Two exemplary frame sizes correspond to HDTV (High Definition Television) and SDTV (Standard Definition Television) signal formats as proposed by the Grand Alliance HDTV specification in the United States, for example. **The HDTV frame size is 1080 lines with 1920 samples per line (giving 1080x1920 pixels per image), and the SDTV frame size is 720 lines with 1280 samples per line (giving 720x1280 pixels per image).** Both the HDT and SDTV signals employ a 30 Hz interlaced frame rate and the same chrominance coding format.

10 15 Applicant believes that the Office is inaccurately equating the term “frame size” with the term “aspect ratio”. Applicant would like to point out that while Chiang illustrates an HDTV frame size that differs from an SDTV frame size, Chiang does not describe an HDTV frame size that has a different aspect ratio than an SDTV frame size. Specifically, Chiang lists an example HDTV frame size of 1080x1920, which has a 9:16 aspect ratio (i.e., $1080/120 = 9$ and $1920/120 = 16$). Chiang also lists an example SDTV frame size of 720x1280, which also has a 9:16 aspect ratio (i.e., $720/80 = 9$ and $1280/80 = 16$).

20 25 This is further supported by the Applicant’s background section that gives a description of the previous technology and describes problems that may occur when data that is gathered at one aspect ratio is displayed using a display device with another aspect ratio. Applicant specifically states, “Since

the source image has a 4:3 aspect ratio, the procedures and/or components that separate out the base layer and the enhancement layer inherently maintain the same aspect ratio for the base layer and the enhancement layer.” (Application, pg. 3, line 25 – pg. 4, line 3.)

5 Because different frame sizes do not necessarily have different aspect ratios, the following statement by the Office (Office Action pg. 3) is inaccurate:

10 the claimed “the **aspect ratio** associated with the enhancement layer differs from the **aspect ratio** associated with the base layer” reads on (i.e. col. 2, lines 65 “enhancement layer data accommodates different **frame sizes**” – col.3, lines 10)

Accordingly, claim 1 is allowable.

Claim 2 recites:

15 A method as recited in claim 1 wherein the aspect ratio associated with the base layer corresponds to an aspect ratio associated with low-resolution televisions

Similarly, claim 3 recites:

20 A method as recited in claim 1 wherein the aspect ratio associated with the enhancement layer corresponds to an aspect ratio associated with high-resolution televisions

As stated above with reference to claim 1, Chiang does not even 25 mention the term “aspect ratio”. Rather, Chiang describes a system in which the frame size of the base layer corresponds to a frame size associated with a

low-resolution television and the frame size of the enhancement layer corresponds to the frame size associated with a high definition television. As illustrated above, frame size is not the same as aspect ratio. As illustrated above, two different frame sizes can have the same aspect ratio. Accordingly,

5 and by virtue of their dependence on claim 1, claims 2 and 3 are therefore allowable.

Claims 13-20 are allowable by virtue of their dependence on claim 1.

Claim 21 states:

10 A method comprising:

decoding a first layer representing a low-resolution portion of an encoded image, wherein the first layer has an associated aspect ratio; and

decoding a second layer representing a high-resolution portion of the encoded image, wherein the second layer has an associated aspect ratio, and wherein the aspect ratio associated with the second layer differs from the aspect ratio associated with the first layer.

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20 As stated by the Office, the limitations claimed are substantially similar to claim 1, and are the reverse process (decoding). Accordingly, for the same reasons stated above with reference to claim 1, claim 21 is allowable over Chiang.

Claims 22-23 are allowable by virtue of their dependence on claim 21

25 and for the same reasons stated above with reference to claims 2-3.

Claims 26-30 and 35 are allowable by virtue of their dependence on claim 21.

Claim 36 is allowable for the same reasons stated above with reference to claim 1.

5 Claims 37-38 are allowable by virtue of their dependence on claim 36 and for the same reasons stated above with reference to claims 2-3.

Claims 39 – 41 are allowable by virtue of their dependence on claim 36.

Claim 42 is allowable for the same reasons stated above with reference to claim 1.

10 Claims 46-49 are allowable by virtue of their dependence on claim 42.

Claim 50 is allowable for the same reasons stated above with reference to claim 21.

Claims 51-52 are allowable by virtue of their dependence on claim 50 and for the reasons stated above with reference to claims 2-3.

15 Claim 53 is allowable by virtue of its dependence on claim 50.

Regarding claims 54 and 55, the Office states that the limitations recited in claim 54 are similar to claim 1, and therefore the grounds for rejecting claim 1 also apply to claim 54. Applicant believes this statement is in error, and believes the Office intended to apply the same grounds for rejecting claim 1 to 20 rejecting claim 55. Furthermore, the Office states that the limitations recited in claim 55 are similar to claim 20, and therefore the grounds for rejecting claim 20 also apply to claim 55. Applicant believes this statement is in error.

Claim 54 is allowable by virtue of its dependence on claim 50.

Claim 55 is allowable for the same reasons stated above with reference to claim 1.

Claims 58-59 are allowable by virtue of their dependence on claim 55.

Claims 61-64 are allowable by virtue of their dependence on claim 55.

5 Claim 65 is allowable for the same reasons stated above with reference to claim 21.

Claims 68-69 are allowable by virtue of their dependence on claim 65.

Claim 70 is allowable for the same reasons stated above with reference to claim 1.

10 Claims 71-72 are allowable by virtue of their dependence on claim 70 and for the reasons stated above with reference to claims 2-3.

Claim 73 is allowable for the same reasons stated above with reference to claim 21.

Claims 74-75 are allowable by virtue of their dependence on claim 73.

15 Claims 76-77 are allowable by virtue of their dependence on claim 1.

Claims 78-79 are allowable by virtue of their dependence on claim 21.

Claim 80 is allowable by virtue of its dependence on claim 36.

Claim 81 is allowable by virtue of its dependence on claim 50.

20 **35 U.S.C. 103(a)**

Claims 4-5, 7-9, 24, 25, 45, 56, 57, 60, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang.

Claim 4 recites:

A method as recited in claim 1 wherein the aspect ratio associated with the base layer is 4:3.

5 Similarly, claim 5 recites:

A method as recited in claim 1 wherein the aspect ratio associated with the enhancement layer is 16:9.

10 Because they depend from claim 1, claims 4 and 5 each also include the elements recited in claim 1, namely:

generating a base layer representing a low-resolution portion of the source image, wherein the base layer has an associated aspect ratio; and

15 generating an enhancement layer representing a high-resolution portion of the source image, wherein the enhancement layer has an associated aspect ratio, and wherein the aspect ratio associated with the enhancement layer differs from the aspect ratio associated with the base layer.

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As stated above, Chiang describes a dynamically configurable video signal processing system for encoding and decoding data in the form of hierarchical layers. The image resolution and corresponding number of pixels per image of data may be varied as a function of system parameters. (Chiang,

25 Abstract.)

Chiang does not describe a system in which the **aspect ratio** associated with a particular layer of the image data may vary from an aspect ratio

associated with another layer of the image data (as recited in claim1 from which claims 4 and 5 depend). Nowhere does Chiang even suggest that there may be differences in aspect ratio between the base layer and the enhancement layer. Rather, Chiang teaches that although the resolution/frame size may

5 differ, ***the aspect ratio is the same***. Specifically, Chiang describes a particular example in which the frame size differs between two layers, but in the example, the aspect ratio of the two is identical. That is, the example given in Chiang, col. 2, line 67-col. 3, line 8 describes an HDTV frame size of 1080x1920 and an SDTV frame size of 720x1280. While the frame size and resolution of the two

10 differ, the aspect ratio of the two is the same, namely 9:16.

The Office states that in col. 3, lines 14-17, Chiang teaches that the disclosed system can be readily extended by one skilled in the art to other/different video data ***resolution*** as desired. Applicant would like to point out, however, that nowhere does Chiang teach or suggest that the disclosed

15 system can be readily extended to one in which two layers of the same image data may have different ***aspect ratios***, as claimed. Accordingly, claims 4-5 are allowable.

As with claims 4 and 5 discussed above, claims 7 and 8 also depend from claim 1. Therefore, claims 7 and 8 also include the limitations recited in

20 claim 1. Accordingly, for the reasons stated above with reference to claims 4 and 5, claims 7 and 8 are also allowable over Chiang.

Claim 9 is allowable by virtue of its dependency on claim 8.

Claims 24 and 25 are dependent on claim 21, which recites elements similar to claim 1, but directed to decoding, rather than encoding. Specifically, claim 21 recites:

A method comprising:

5 decoding a first layer representing a low-resolution portion of an encoded image, wherein the first layer has an associated aspect ratio; and

10 decoding a second layer representing a high-resolution portion of the encoded image, wherein the second layer has an associated aspect ratio, and wherein the aspect ratio associated with the second layer differs from the aspect ratio associated with the first layer.

Again, Chiang does not teach or suggest decoding (or encoding) image data comprising a first layer with a first **aspect ratio** and a second layer with a second **aspect ratio**. Rather, Chiang describes image data that is encoded such that a first layer has a first resolution and a second layer has a second resolution. However, the example given in Chiang shows two layers having different resolutions but the same aspect ratio. Furthermore, Chiang does not teach or suggest a difference in aspect ratio, as claimed, and in fact, does not even mention aspect ratios. Accordingly, because Chiang does not teach or suggest the elements claimed in claim 21, claims 24 and 25 are therefore allowable.

Claim 45 is dependent on claim 42, which recites elements similar to claim 1. Accordingly, for the same reasons stated above with reference to claims 4 and 5, claim 45 is also allowable over Chiang.

Claims 56 and 57 depend from claim 55, which recites elements similar to claim 1. Accordingly, for the same reasons stated above with reference to claims 4 and 5, claims 56 and 57 are also allowable over Chiang.

Claim 60 is dependent on claim 55, which recites elements similar to 5 claim 1. Accordingly, for the same reasons stated above with reference to claims 4 and 5, claim 60 is also allowable over Chiang.

Claims 66 and 67 depend from claim 65, which recites elements similar to claim 21. Accordingly, for the same reasons stated above with reference to claims 24 and 25, claims 66 and 67 are also allowable over Chiang.

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Claims 6, 12, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang as applied to claim 1 in view of Gharavi (US 5,253,058).

Claim 6 recites:

15 A method as recited in claim 1 wherein the step of generating a base layer includes low-pass filtering the source image.

Gharavi describes a highly efficient video coding scheme which codes 20 the pel values of a scanned high quality HDTV video signal in such a manner that a low-quality version of the signal as well as a high-quality version are available to different video subscribers. (Gharavi, Abstract.) Like Chiang, Gharavi does not teach or suggest a video coding scheme in which an image is

encoded such that a first layer has a first aspect ratio and a second layer has a different aspect ratio.

The Office clearly states that Chiang is being relied upon for rejecting the elements recited in claim 1, while Gharavi being relied upon for rejecting the 5 specific element recited in claim 6 of low-pass filtering a source image. As stated above with reference to claims 4 and 5, Chiang does not teach or suggest the elements recited in claim 1. Furthermore, Gharavi does not add anything to the teaching of Chiang with reference to the elements of claim 1. Accordingly, by virtue of its dependence on claim1, claim 6 is allowable over 10 Chiang in view of Gharavi.

Claim 12 recites:

A method as recited in claim 1 wherein the step of generating an enhancement layer includes high-pass filtering the 15 source image.

The Office clearly states that Chiang is being relied upon for rejecting the elements recited in claim 1, while Gharavi being relied upon for rejecting the specific element recited in claim 12 of high-pass filtering a source image. As 20 stated above with reference to claim6, Chiang does not teach or suggest the elements recited in claim 1, and Gharavi does not add anything to the teaching of Chiang with reference to the elements of claim 1. Accordingly, by virtue of its dependence on claim1, claim 12 is allowable over Chiang in view of Gharavi.

As stated by the Office, claims 43 and 44 are substantially similar to claims 6 and 12. Claims 43 and 44 depend from claim 42, which recites substantially similar elements as claim 1. Accordingly, for the reasons stated above with reference to claims 6 and 12, claims 43 and 44 are also allowable

5 over Chiang in view of Gharavi.

Claims 10, 11, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang as applied to claim 1 in view of Yagasaki et al (US 6,414,991) hereinafter referred to as "Yagasaki".

10 Yagasaki is directed to image encoding, decoding, and transmission where dynamic image data is recorded on storage media and also regenerated and displayed on a display, or in the case where dynamic image data is transmitted from a transmitter side to a receiver side through a transmission path and, on the receiver side, the received dynamic image data is displayed or

15 edited and recorded, as in video-conference systems, videophone systems, broadcasting equipment, and multimedia data base retrieval systems.

Yagasaki does not add anything to the teaching of Chiang as applied to claim 1. That is, Yagasaki does not teach or suggest encoding image data into a base layer and an enhancement layer where the base layer has an aspect ratio and the enhancement layer has a different aspect ratio.

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Claims 10 and 11 depend from claim 8, which depends from claim 1. Because neither Chiang nor Yagasaki teach or suggest the elements recited in

claim 1, claims 10 and 11 are therefore allowable by virtue of their dependence via claim 8 on claim 1.

Claims 33 and 34 depend from claim 21, which recites elements similar to claim 1, but directed to decoding, rather than encoding. As discussed above with reference to claims 24 and 25, Chiang does not teach or suggest the elements of claim 21. Furthermore, as described above with reference to claims 10 and 11, Yagasaki does not add anything to the teaching of Chiang with regard to claim 1. Accordingly, by virtue of their dependence on claim 21, claims 33 and 34 are also allowable over Chiang in view of Yagasaki.

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Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang as applied to claim 1 in view of Bendinelli et al (US 6,061,719) hereinafter referred to as "Bendinelli".

Bendinelli describes a system in which URLs are transmitted with television signals in order to permit web content to be displayed in synchronization with television programming. Bendinelli does not teach or suggest any sort of video data encoding or decoding, and specifically does not teach encoding or decoding video data in which a base layer has an aspect ratio and an enhancement layer has another aspect ratio.

20 Claim 31 depends from claim 21, which recites elements similar to claim 1, but directed to decoding, rather than encoding. As discussed above with reference to claims 24 and 25, Chiang does not teach or suggest the elements of claim 21. Furthermore, Bendinelli does not add anything to the teaching of

Chiang with regard to claim 1. Accordingly, by virtue of its dependence on claim 21, claim 31 is allowable over Chiang in view of Bendinelli.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over 5 Chiang as applied to claim 1 in view of Dewald (US 6,317,171) hereinafter referred to as "Dewald".

Dewald is directed to a television receiver having a spatial light modulator and a projection lens that projects images to a screen. If the aspect ratio of the image to be displayed does not match that of the spatial light 10 modulator, an anamorphic lens is used to generate an image that is anamorphically squeezed so that the viewer perceives a normal wide-screen image on the screen. (Dewald, Abstract.)

Claim 32 recites:

15 A method as recited in claim 21 further including correcting an anamorphic squeeze in the first layer.

Dewald specifically states that the anamorphic lens "generates an image that is anamorphically squeezed" – that is, Dewald teaches **applying** an anamorphic squeeze, not **correcting** an anamorphic squeeze, as claimed.

20 Furthermore, claim 32 depends from claim 21, and as described above, Chiang does not teach or suggest the elements of claim 21. Neither does Dewald add anything to the teaching of Chiang with regard to claim 21. Accordingly, for the reason stated above, and its dependence on claim 21, claim 32 is therefore allowable over Chiang in view of Dewald.

Conclusion

Claims 1-81 are believed to be in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the present 5 application. Should any issue remain that prevents immediate issuance of the application, the Examiner is encouraged to contact the undersigned agent to discuss the unresolved issue.

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